Abstract

Background and Aim: Several new irreversible hydrocolloid formulations have recently become available with claims of an improved dimensional stability by the manufacturers. The aim of this study was to evaluate the accuracy of casts made from three three alginate impression materials poured after specific storage periods.

Materials and Methods: In this experimental trial, one stainless steel master casts were fabricated in the form of dental arch. Three pins entirely engaged into three holes on the maxillary dentiform, three pins cylinders (7 mm height and 6 mm diameter) were fixed. Impressions were made with custom tray using three alginates Hydrogum 5 (zhermack), Alginoplast (Heraeuskuzler), Golchai (Iralgin, Iran, Tehran). The impressions were stored for 15 minutes, 1 hours, and 24 hours**.** Following the respective storage times the final impressions were poured using stone gypsum. On each cast two measurements (μm) were recorded for each model including anterior-posterior (AP) dimension and cross arch (CA) dimension. The dimensions on the master model and fabricated casts were compared using microeter with 1 micron exactness. One way ANOVA and Dunnet test were used for comparison of dimensional stability at interval. The level of significance was set at$P<0.05$.

Results: The dimensional stability of the alginate impressions was time dependent ($p<0.05$).

Conclusion: The dimensional stability of the alginate impressions is influenced by the storage time. Shorter storage time of irreversible hydrocolloid impressions before pouring is desirable.

Key words: Dimensional stability, alginate, impression